

9 (Twice Amended)

A beverage dispenser apparatus for dispensing through a nozzle  
a preestablished volume of a syrup and a preestablished volume of  
5 a soda to be intermixed within said nozzle, said beverage  
dispensing apparatus comprising:

a soda inlet for connection to a source of soda under  
pressure;

a syrup inlet for connection to a source of syrup;

10 a syrup section connected to said syrup inlet utilizing a  
first drive piston, said first drive piston moves to  
cause dispensing of said preestablished volume of syrup  
into said nozzle, said first drive piston being movable  
in both a forward and reverse direction within a syrup  
15 drive piston chamber, said syrup in said preestablished  
volume to be dispensed during movement of said first  
drive piston in said forward direction and also during  
movement in said reverse direction;

a soda section utilizing a second drive piston, said second  
20 drive piston moves to cause dispensing of said  
preestablished volume of soda into said nozzle, said  
second drive piston being movable in both said forward  
and said reverse direction within a soda drive piston  
chamber, soda in said preestablished volume to be  
25 dispensed during movement of said second drive piston in  
said forward direction and also during movement in said

reverse direction, said soda drive piston chamber being  
spaced from said syrup drive piston chamber, wherein said  
first drive piston is connected to said second drive  
piston so both said first drive piston and said second  
drive piston move together in said forward direction and  
together in said reverse direction; and

a completely liquid soda driven control located between and  
connected between the soda inlet and the soda drive  
piston chamber, and powered by soda pressure through the  
soda from the soda inlet, the liquid driven control  
[piston] having an on state in which soda under pressure  
is routed to alternate sides of the second drive piston  
to cause reciprocal motion of the first and second drive  
pistons, and having an off state in which soda under  
pressure is routed to prevent movement of the first and  
second drive pistons.

10 (Twice Amended)

The beverage dispensing apparatus of Claim 9 wherein:

said liquid soda driven control [piston] comprises first  
and second slide pistons, the first slide piston being  
physically contactable and movable by said second drive  
piston during movement in said forward direction, and the  
second slide piston being physically contactable by said  
second drive piston during movement in said reverse  
direction.

12 (Twice Amended)

The beverage dispensing apparatus of Claim 9 wherein the liquid soda driven control [piston] includes:

first and second soda inlet valves for selectively connecting first and second ends, respectively, of the soda drive piston chamber to the soda inlet.

14 (Twice Amended)

The beverage dispensing apparatus of Claim 13 wherein the liquid soda driven control [piston] includes:

first and second valves associated with the first and second ends of the soda piston drive cylinder for switching liquid soda driven fluid connections in the control [piston] each time the second drive piston approaches one of the first and second ends.

18 (Twice Amended)

The beverage dispensing apparatus of Claim 9 [and] wherein the liquid soda driven control further [comprising] comprises:

a control piston, and an on/off control connected to the control piston for determining whether the control piston is in the on state or off state.

A beverage dispenser apparatus for dispensing through a nozzle  
a preestablished volume of syrup and a preestablished volume of a  
soda to be intermixed within said nozzle, said beverage dispensing  
5 apparatus comprising:

a valve body;

a syrup inlet for connection to a source of syrup;

a syrup chamber within the valve body, the syrup chamber  
having first and second ends;

10 a syrup piston which is movable in the syrup chamber in a  
forward direction toward the first end at the syrup  
chamber and in a reverse direction toward the second end  
of the syrup chamber;

means for connecting the syrup inlet and the first and second  
15 ends of the syrup chamber;

means for connecting the first and second ends of the syrup  
chamber and the nozzle;

a soda inlet for connection to a source of soda under  
pressure;

20 a soda chamber within the valve body, the soda chamber having  
first and second ends;

a soda piston which is movable in a forward direction toward  
the first end of the soda chamber and in a reverse  
direction toward the second end of the soda chamber, the  
25 soda piston being connected to the syrup piston so that

the soda and syrup pistons move together in the forward direction and the reverse direction; and  
a completely liquid soda driven control piston located between and connected between the soda inlet and the first and  
5 second ends of the soda chamber, and powered by soda pressure through the soda from the soda inlet, the control piston having an on state in which soda under pressure is routed alternately to the first and second  
ends of the soda chamber to cause reciprocal motion of  
10 the soda and syrup pistons, and having an off state in which soda under pressure is routed to prevent movement of the soda and syrup pistons.

48 (Once Amended)

15 The dispensing valve as defined in Claim 45 and further including:

[a] said second fluid flow control [system] including a plurality of check valves and a plurality of second fluid passageways providing fluid communication between the  
20 second fluid inlet, the check valves, and the first and second ends of the driven piston chamber, and fluid communication between the first and second ends of the driven piston chamber and the nozzle, for alternately directing the second fluid to and exhausting it from  
25 opposite sides of the driven piston as it is moved in the forward and reverse directions by the drive piston,

whereby the second fluid is dispensed out the nozzle as a function of the volume of the driven piston chamber.

49 (Once Amended)

5        a beverage dispenser apparatus for dispensing through a nozzle a preestablished volume of a syrup and a preestablished volume of a soda to be intermixed within said nozzle, said beverage dispensing apparatus comprising:

10        a soda inlet for connection to a source of soda under pressure;

a syrup inlet for connection to a source of syrup;

15        a syrup section connected to said syrup inlet utilizing a first drive piston, said first drive piston moves to cause dispensing of said preestablished volume of syrup into said nozzle, said first drive piston being movable in both a forward and reverse direction within a syrup drive piston chamber, said syrup in said preestablished volume to be dispensed during movement of said first drive piston in said forward direction and also during  
20        movement in said reverse direction;

25        a soda section utilizing a second drive piston, said second drive piston moves to cause dispensing of said preestablished volume of soda into said nozzle, said second drive piston being movable in both said forward and said reverse direction within a soda drive piston chamber, soda in said preestablished volume to be

dispensed during movement of said second drive piston in  
said forward direction and also during movement in said  
reverse direction, said soda drive piston chamber being  
generally aligned with but spaced apart from said syrup  
drive piston chamber, such that there is an [air gap]  
open space therebetween precluding possibility of soda  
entering the syrup drive piston chamber or syrup entering  
the soda drive piston chamber, mechanical coupling means  
for connecting said first drive piston to said second  
drive piston so both said first drive piston and said  
second drive piston move together in said forward  
direction and together in said reverse direction; and  
a control piston connected between the soda inlet and the soda  
drive piston chamber and including first and second slide  
pistons and powered by soda pressure, the control piston  
having an on state in which soda under pressure is routed  
[t] to alternate sides of the second drive piston to  
cause reciprocal motion of the first and second drive  
pistons, and having an off state in which soda under  
pressure is routed to prevent movement of the first and  
second drive pistons, said first slide piston being  
physically contactable and movable by said second drive  
piston during movement in said forward direction, and the  
second slide piston being physically contactable by said  
second drive piston during movement in said reverse  
direction.

51 (Once Amended)

The beverage dispensing apparatus of Claim 49 wherein said control piston has a control piston chamber with end positions and having a piston therein and not being [a floating piston so that it is not] biased to either of said end positions when in the off state, said control piston being a completely liquid driven control piston and powered by soda pressure through soda from the soda inlet.

52 (Once Amended)

A beverage dispenser apparatus for dispensing through a nozzle a preestablished volume of syrup and a preestablished volume of a soda to be intermixed within said nozzle, said beverage dispensing apparatus comprising:

a valve body;

a syrup inlet for connection to a source of syrup;

a syrup chamber within the valve body, the syrup chamber having first and second ends;

a syrup piston which is movable in the syrup chamber in a forward direction toward the first end of the syrup chamber and in a reverse direction toward the second end of the syrup chamber;

means for connecting the syrup inlet and the first and second ends of the syrup chamber;

means for connecting the first and second ends of the syrup chamber and the nozzle;

a soda chamber within the valve body, the soda chamber having first and second ends;

5 a soda piston which is movable in a forward direction toward the first end of the soda chamber and in a reverse direction toward the second end of the soda chamber, said soda piston drive chamber being spaced apart from the syrup drive piston chamber, such that there is an [air gap] open space therebetween precluding possibility of  
10 soda entering the syrup drive piston chamber or syrup entering the soda drive piston chamber, the soda piston being connected to the syrup piston so that the soda and syrup pistons move together in the forward direction and the reverse direction; and

15 a control piston connected between the soda inlet and the first and second ends of the soda chamber, and powered by soda pressure, the control piston having an on state in which soda under pressure is routed alternately to the first and second ends of the soda chamber to cause reciprocal motion of the soda and syrup pistons, and  
20 having an off state in which soda under pressure is routed to prevent movement of the soda and syrup pistons.

53 (Once Amended)

25 The beverage dispensing apparatus of Claim [51] 52 wherein said control piston has a control piston chamber with end positions and having a piston therein and not being [a floating piston so

that it is not] biased to either of said end positions when in the off state, said control piston being a completely liquid driven control piston and powered by soda pressure through soda from the soda inlet.

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54 (Once Amended)

A beverage dispenser apparatus for dispensing through a nozzle a preestablished volume of a syrup and a preestablished volume of a soda to be intermixed within said nozzle, said beverage dispensing apparatus comprising:

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a soda inlet for connection to a source of soda under pressure;

a syrup inlet for connection to a source of syrup;

a syrup section connected to said syrup inlet utilizing a

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first drive piston, said first drive piston moves to cause dispensing of said preestablished volume of syrup into said nozzle, said first drive piston being movable in both a forward and reverse direction within a syrup drive piston chamber, said syrup in said preestablished volume to be dispensed during movement of said first drive piston in said forward direction and also during movement in said reverse direction;

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a soda section utilizing a second drive piston, said second drive piston moves to cause dispensing of said preestablished volume of soda into said nozzle, said second drive piston being movable in both said forward

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and said reverse direction within a soda drive piston chamber, soda in said preestablished volume to be dispensed during movement of said second drive piston in said forward direction and also during movement in said reverse direction, said soda drive piston chamber being spaced from said syrup drive piston chamber, wherein said first drive piston is connected to said second drive piston so both said first drive piston and said second drive piston move together in said forward direction and together in said reverse direction; and

a control piston connected between the soda inlet and the soda drive piston chamber, and powered by soda pressure, the control piston having a control piston chamber with end positions and a drive piston therein and also having an on state in which soda under pressure is routed to alternate sides of the second drive piston to cause reciprocal motion of the first and second drive pistons, and having an off state in which soda under pressure is routed to prevent movement of the first and second drive pistons, said control piston not being [a floating piston so that it is not] biased to either end of said end positions when in the off state.

A beverage dispenser apparatus for dispensing through a nozzle a preestablished volume of syrup and a preestablished volume of a soda to be intermixed within said nozzle, said beverage dispensing apparatus comprising:

a valve body;

a syrup inlet for connection to a source of syrup;

a syrup chamber within the valve body, the syrup chamber having first and second ends;

a syrup piston which is movable in the syrup chamber in a forward direction toward the first end of the syrup chamber and in a reverse direction toward the second end of the syrup chamber;

means for connecting the syrup inlet and the first and second ends of the syrup chamber;

means for connecting the first and second ends of the syrup chamber and the nozzle;

a soda chamber within the valve body, the soda chamber having first and second ends;

a soda piston which is movable in a forward direction toward the first end of the soda chamber and in a reverse direction toward the second end of the soda chamber, the soda piston being connected to the syrup piston so that the soda and syrup pistons move together in the forward direction and the reverse direction;

the soda piston drive chamber being spaced apart from the  
syrup drive piston chamber, such that there is an [air  
gap] open space therebetween precluding possibility of  
soda entering the syrup chamber or syrup entering the  
5 soda chamber; and

a control piston connected between the soda inlet and the  
first and second ends of the soda chamber, and powered by  
soda pressure, the control piston having an on state in  
which soda under pressure is routed alternately to the  
10 first and second ends of the soda chamber to cause  
reciprocal motion of the soda and syrup pistons, and  
having an off state in which soda under pressure is  
routed to prevent movement of the soda and syrup pistons.